UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/732,189	12/07/2000	Robert Miller	IBM/151	1431

26517   7590   10/05/2007
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ART UNIT	PAPER NUMBER
2157	

MAIL DATE	DELIVERY MODE
10/05/2007	PAPER

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PTOL-90A (Rev. 04/07)

UNITED STATES PATENT AND TRADEMARK OFFICE

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Technology Center 2100

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 09/732,189
Filing Date: December 07, 2000
Appellant(s): MILLER, ROBERT

Scott Stinebruner (Reg. No. 38,323)
<u>For Appellant</u>

EXAMINER'S ANSWER

This is in response to the appeal brief filed June 18, 2007 appealing from the Office

action mailed Sep. 20, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Murphy et al., U.S. Patent No. 6,138,251

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Murphy

et al., U.S. Patent No. 6,138,251 (referred to hereafter as Murphy).

Murphy teaches the invention explicitly as claimed including a system and

method for tracking object references in a clustered computer network (see abstract).

As to claims 1, Murphy teaches a method of determining a status of a peer

protocol initiated on a plurality of members of a group in a clustered computer system

(see col. 3 lines 32-36, a clustered computer nodes connected through a

communications link), the method comprising:

(a) locally tracking protocol progress information for a peer protocol within each

of a plurality of members collectively managed as a group by a clustered computer

system wherein the peer protocol is of the type wherein each member of the group

receives a message associated with the peer protocol and returns an acknowledgement

in association with locally processing the peer protocol (see col. 1 lines 31-50, col. 3

lines 53-58 and col. 4 lines 50-55 and col. 6 lines 54-col. 7 lines 7, the client tracks the

protocol progress when downloading an object using object reference to track local

progress and tracks progress of other members using foreign reference count by

sending messages and receiving acks in a clustered computer environment); and

(b) responding to a query directed to a selected member of the group by

providing the protocol progress information locally tracked by the selected member

wherein the query comprises a request for the protocol progress information (see col. 6

lines 65-col. 7 lines 12, Node B receives INC messages and returns a ACK message so

that the server node may adjust the object reference count).

As to claim 14, Murphy teaches an apparatus, comprising:

(a) a memory (see col. 6 lines 1-20); and

(b) a program resident in the memory, the program configured to determine a status of a peer protocol initiated on a plurality of members of a group in a clustered computer system by locally tracking protocol progress information within at least one member of the group (see col. 1 lines 31-50, col. 3 lines 53-58 and col. 4 lines 50-55 and col. 6 lines 54-col. 7 lines 7, the client tracks the protocol progress when downloading an object using object reference to track local progress and tracks progress of other members using foreign reference count by sending messages and receiving acks in a clustered computer environment), and

providing the protocol progress information locally tracked by a member of the group in response to a query directed to such member, wherein the peer protocol is of the type wherein each member of the group receives a message associated with the peer protocol and returns an acknowledgement in association with locally processing the peer protocol and responding to a query directed to a selected member of the group by providing the protocol progress information locally tracked by the selected member wherein the query comprises a request for the protocol progress information (see col. 6 lines 65-col. 7 lines 12, Node B receives INC messages and returns a ACK message so that the server node may adjust the object reference count).

As to claim 22, Murphy teaches a clustered computer system, comprising:

(a) a plurality of nodes coupled to one another over a network (see col. 4 lines 50-55, the client tracks the protocol progress when downloading an object using object reference);

(b) a plurality of member jobs defining a group and configured to be executed by at least one of the plurality of nodes, (see col. 4 lines 50-55 and col. 6 lines 54-col. 7 lines 7, the client tracks the protocol progress when downloading an object using object reference to track local progress and tracks progress of other members using foreign reference count by sending messages and receiving acks); and

(c) a program configured to be executed by at least one of the plurality of nodes to determine a status of a peer protocol initiated on the plurality of members by locally tracking protocol progress information within at least one member of the group, and providing the protocol progress information locally tracked by a member of the group in response to a query directed to such member wherein the peer protocol is of the type wherein each member of the group receives a message associated with the peer protocol and returns an acknowledgement in association with locally processing the peer protocol and responding to a query directed to a selected member of the group by providing the protocol progress information locally tracked by the selected member wherein the query comprises a request for the protocol progress information (see col. 6 lines 65-col. 7 lines 12, Node B receives INC messages and returns a ACK message so that the server node may adjust the object reference count).

As to claim 23, Murphy teaches a program product, comprising:

(a) a program configured to determine a status of a peer protocol initiated on a plurality of members of a group in a clustered computer system by locally tracking protocol progress information within at least one member of the group, and providing the protocol progress information locally tracked by a member of the group in response to a query directed to such member, wherein the peer protocol is of the type wherein each member of the group receives a message associated with the peer protocol and returns an acknowledgement in association with locally processing the peer protocol and responding to a query directed to a selected member of the group by providing the protocol progress information locally tracked by the selected member wherein the query comprises a request for the protocol progress information (see col. 4 lines 50-55 and col. 6 lines 54-col. 7 lines 7, the client tracks the protocol progress when downloading an object using object reference to track local progress and tracks progress of other members using foreign reference count by sending messages and receiving acks); and

(b) a signal bearing medium bearing the program (see col. 4 lines 50-55, the client tracks the protocol progress when downloading an object using object reference).

As to claim 24, Murphy teaches the program product of claim 23, wherein the signal bearing medium includes at least one of a recordable medium and a transmission medium (see col. 4 lines 50-55).

As to claim 25, Murphy teaches an apparatus, comprising:

(a) a memory (see col. 4 lines 50-55); and

(b) a program, resident in the memory, the program configured to monitor for receipt of a query message by a member of a group in a clustered computer system

while a current protocol for the member is waiting on a resource, the program further

configured to output protocol status information in response to receipt of the query

message (see col. 7 lines 9-32, Client A sends a foreign ref count to client B, client B

will determine that B already has the reference and respond to A by sending a DEC

message to node A).

As to claim 26, Murphy teaches the apparatus of claim 25, wherein the resource

is selected from the group consisting of a local resource and an acknowledgment (ACK)

message (see col. 4 lines 50-55).

As to claims 2 and 15, Murphy teaches the method and apparatus of claims 1

and 14 respectively, wherein locally tracking protocol progress information includes

tracking, within a first member of the group, acknowledgment (ACK) messages directed

to the first member by each other member of the group (see col. 7 lines 1-20, col. 1

lines 52-61, col. 2 lines 1-8 and col. 6 lines 20-26).

As to claims 3 and 16, Murphy teaches the method and apparatus of claims 1

and 14 respectively, wherein locally tracking protocol progress information includes:

(a) tracking, within a first member of the group, a current acknowledgment (ACK)

round for the first member, the current ACK round associated with a current peer

protocol being processed by the first member (see col. 7 lines 1-20); and

(b) tracking, within the first member, a last ACK round received parameter

associated with each other member of the group, the last ACK round received

parameter for each other member identifying a peer protocol associated with a last

received ACK message from such other member (see col. 6 lines 56-col. 7 lines 20,

ACK messages sent for each INC and DEC messages so that the foreign and local

reference may be changed to reflect each message).

As to claim 4, Murphy teaches the method of claim 3, wherein locally tracking

protocol progress information further includes updating the current ACK round for the

first member in response to receipt of ACK messages for the current peer protocol from

all other members of the group (see col. 6 lines 56-col. 7 lines 20).

As to claim 5, Murphy teaches the method of claim 1, wherein locally tracking

protocol progress information includes updating the protocol progress information for a

first member of the group in response to receipt of an acknowledgment (ACK) message

directed to the first member (see col. 7 lines 1-20, the message count is INC or DEC in

response to receiving a message).

As to claims 6 and 17, Murphy teaches the method and apparatus of claims 1

and 14 respectively, further comprising:

(a) waiting on a resource required by a protocol being processed on the selected

member and

(b) monitoring for receipt of the query by the selected member while waiting on

the resource (see col. 7 lines 1-20).

As to claims 7 and 18, Murphy teaches the method and apparatus of claims 6

and 17 respectively, wherein the protocol is a peer protocol, and wherein waiting on the

resource includes waiting for receipt of an acknowledgment (ACK) message directed to

the selected member (see col. 7 lines 1-20 and col. 1 lines 52-61, col. 2 lines 1-8 and

col. 6 lines 20-26).

As to claims 8 and 19, Murphy teaches the method and apparatus of claims 6

and 17 respectively, wherein the protocol is a local protocol, and wherein waiting on the

resource includes waiting on a local resource requested by the selected member (see

col. 7 lines 1-20, col. 1 lines 52-61, col. 2 lines 1-8 and col. 6 lines 20-26).

As to claims 9, Murphy teaches the method of claim 8, wherein the local resource

is selected from the group consisting of a lock and a creation of a new job (see col. 4

lines 43-65, col. 1 lines 52-61, col. 2 lines 1-8 and col. 6 lines 20-26).

As to claim 10, Murphy teaches the method of claim 6, wherein waiting on the

resource includes waiting for receipt of a message by a local message queue for the

selected member, and wherein monitoring for receipt of the query includes monitoring

the local message queue for receipt of a query message (see col. 7 lines 1-20).

As to claims 11 and 20, Murphy teaches the method and apparatus of claims 1

and 17 respectively, wherein locally tracking protocol progress information within each

member of the group includes locally tracking within the selected member protocol

progress information associated with at least one other member in the group (see col. 7

lines 1-20).

As to claims 12 and 21, Murphy teaches the method and apparatus of claims 1

and 17 respectively, wherein locally tracking protocol progress information within each

member of the group includes locally tracking within the selected member protocol

progress information associated with all other members in the group (see col. 7 lines 1-

20, col. 1 lines 52-61, col. 2 lines 1-8 and col. 6 lines 20-26, plurality nodes monitor the messages for object reference count where the reference object count greater than zero indicate that the resource is being used, however when the reference count reaches zero, then the resource is available for use).

As to claim 13, Murphy teaches the method of claim 1, wherein locally tracking protocol progress information within each member of the group includes locally tracking within each member protocol progress information associated with each other member in the group (see col. 6 lines 45-col. 7 lines 20, col. 1 lines 52-61, col. 2 lines 1-8 and col. 6 lines 20-26, plurality nodes monitor the messages for object reference count where the reference object count greater than zero indicate that the resource is being used, however when the reference count reaches zero, then the resource is available for use).

(10) Response to Argument

The appellant argues that Murphy fails to teach a clustered computer system managing a plurality of nodes (See brief pages 11-12, Argument A).

In reply to A, Murphy teaches a system and method for tracking object references that relates a usage of a resource on a network (see abstract and col. 1 lines 19-29). In addition, Murphy explicitly teaches the network has a plurality of nodes configured as a clustered computer system (see col. 3 lines 18-16 and 33-37 and col. 2 lines 45-50). Therefore Murphy teaches a clustered computer system managing a plurality of nodes.

The appellant argues that Murphy fails to teach tracking the progress of peer

protocol (See brief pages 12-14, Argument B).

In reply to B, Murphy teaches the system and method uses a messaging protocol

to tracking references to objects (see col. 1 lines 35-42). Each node may have a

plurality of reference to objects on the node and may also send the object references to

other nodes on the network to be tracked on remote nodes (see col. 1 lines 46-50). In

addition, each node has a local reference count and a foreign reference count. The local

reference count is used to track the local user references to the object, while the foreign

reference count is used to track references to the object by remote nodes (see col. 4

lines 26-35). The object is mainly used to identify and track the usage of a resource or

an application process (see col. 3 lines 53-58). If there are no outstanding object

references, then the resource is no longer required and the resource is released so

other nodes can use the resource (see col. 1 lines 52-61).

Appellant argues that Murphy does not teach tracking the progress of peer

protocol. However, the specification of the disclosure of the application defines the term

"protocol" to be a request for operation to be performed (see specification pages 2 lines

7-12 and page 6 lines 28-31). Since the protocol is defined to be a request for

operation, therefore examiner interprets the "protocol progress" that is the progress of a

resource or application utilization to be the object defined in Murphy which keeps track

of the usage or application processes (see Murphy col. 3 lines 53-58). Also since

Murphy tracks the objects using object reference numbers, therefore Murphy teaches

tracking the progress of peer protocol as claimed.

The appellant argues that Murphy fails to teach responding to a query directed to a member of the group by providing the locally tracked progress information (See brief page 14-15, Argument C).

In reply to C, Murphy teaches in one embodiment where Node B sends an INC message to the server node, the INC message requests the server node to increment the object reference count for object A (see col. 6 lines 54-60). Since the INC message sends a request i.e. "query" to change information with regards to object reference i.e. "protocol progress information", then examiner interprets the INC message to be "query comprises a request for the protocol progress information".

Also in response to the INC message, the server node increments the foreign reference count for object A and sends an ACK message back to node B so that node B can decrement the foreign reference count for object A (see col. 6 lines 65-col. 7 lines 12). Since the ACK message provides information to the server node to decrement the foreign reference of object A and since the ACK message is sent in response to the INC message, examiner interprets the ACK message to be "the response for a query providing protocol progress information".

The appellant argues that Murphy fails to teach monitoring for receipt of a query while waiting on a resource (See brief page 16, Argument D).

In reply to D, nodes and servers monitor INC, DEC and ACK messages related to reference objects wherein each object utilizes a plurality of resources by one or a plurality of nodes. If the local and foreign reference count of an object is zero, then the resources are reclaimed and available for use by other nodes (see col. 1 lines 52-61,

col. 2 lines 1-8 and col. 6 lines 20-26). The plurality nodes monitor the messages for

object reference count where the reference object count greater than zero indicate that

the resource is being used, however when the reference count reaches zero, then the

resource is available for use. Therefore, Murphy teaches "monitoring for receipt of a

query while waiting on a resource" as claimed.

The appellant argues that Murphy fails to teach tracking ACK messages to a first

member by other members of the group (See brief page 16, Argument E).

In reply to E, Murphy teaches node B monitors a receipt of an ACK message that

the server node has received the INC message with regards to object reference A

wherein object A resides on node A. In response, node B sends a DEC message to

node A to decrement the local object reference (see col. 7 lines 1-8). Since node B

monitors an ACK message in regards to a object reference for node A, Murphy teaches

"tracking ACK messages to a first member by other members of the group" as claimed.

The appellant argues that Murphy fails to teach tracking current and last ACK

round as in claims 3-4 and 16 (See brief page 17, Argument F).

In reply to F, Murphy teaches tracking the ACK messages sent to and from each

node with regards to object references. Murphy teaches sending ACK messages for

each INC and DEC messages so that the foreign and local reference may be changed

to reflect each message (see col. 6 lines 56-col. 7 lines 20). Therefore Murphy teaches

"tracking current and last ACK round" as claimed.

The appellant argues that Murphy fails to teach waiting on a resource monitoring

for receipt of a query as in claims 6-8 and 17-19 (See brief page 17, Argument G).

In reply to G, nodes and servers monitor INC, DEC and ACK messages related to reference objects wherein each object utilizes a plurality of resources by one or a plurality of nodes. If the local and foreign reference count of an object is zero, then the resources are reclaimed and available for use by other nodes (see col. 1 lines 52-61, col. 2 lines 1-8 and col. 6 lines 20-26). The plurality nodes monitor the messages for object reference count where the reference object count greater than zero indicate that the resource is being used, however when the reference count reaches zero, then the resource is available for use. Therefore, Murphy teaches "monitoring for receipt of a query while waiting on a resource" as claimed.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the

Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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